EDG Data Set Name
MODIS/Terra Geolocation Angles Daily L2G Global 1km SIN Grid Day

Granule Shortname
MODMGGAD

Version	Acquisition Range	Science Quality Status
V001	June 9, 2000 (2000161) - March 3, 2001 (2001062)	Beta as of Jun 9, 2000 Provisional as of Sep 21, 2000
V003	March 21, 2000 (2000081) – December 31, 2002 (2002365)	Provisional as of Nov 1, 2000
V004	February 24, 2000 (2000055)	Validated

Data Set Characteristics
Area = ~ 10° x 10° lat/long
Image Dimensions = 2 (1200x1200 row/column)

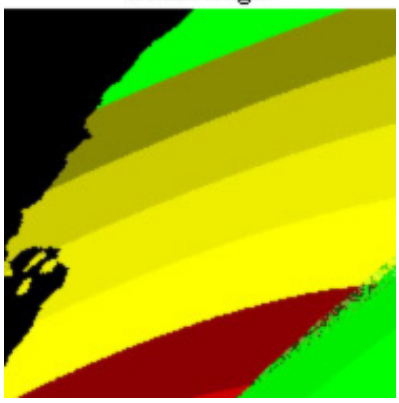
Average File Size = 29 MB
Resolution = 1 kilometer
Projection = Sinusoidal
Processing Level = 2G
Data Format = HDF-EOS
Science Data Sets (SDSs) = 7

Color	Azimuth Angle
White	100° to 120°
Magenta	120° to 130°
Red	130° to 140°
Yellow	140° to 150°
Green	150° to 160°
Cyan	160° to 170°
Blue	170° to 180°

MODMGGAD Day Solar Azimuth Angles

Color	Zenith Angle
Red	0° to 10°
Yellow	10° to 20°
Green	20° to 30°
Blue	30° to 180°

MODMGGAD Day Solar Zenith Angles



Product Description
The MODIS Global Geolocation Angle Day-mode (MODGGAD) files contain information on solar illumination and instrument viewing geometry. These data can be used to model the geometric relationship and distance between the area of the Earth's surface that was imaged, the sun, and the sensor. This is often required to perform atmospheric corrections, composite data from multiple days, and/or to convert or calibrate spectral data to known (absolute) radiance or reflectance units.

The above images represent daytime geolocation information acquired over the western coast of North America on June 9, 2000. The example shown of solar azimuth (top image) quantifies the direction from which the sun was illuminating the area at the time of observation. The example of solar zenith (bottom image) quantifies the angle between the ground

surface normal (local vertical) and the sun at the same time. MODMGGAD also contains information on sensor angle quantified in a similar manner as the examples shown above, as well as the range from the sensor to the ground point. The combination of sensor and solar angle information allows the solar illumination and instrument viewing geometry of the surface target to be determined.

MODMGGAD files are used as input to higher level products such as MODIS Surface Reflectance (MOD09). Geometric information for each sensor observation is stored on a geolocated grid, with Level 2 geophysical parameters stored as Level 2 Gridded (L2G) products. Each file contains all of the MODIS day-mode data acquired for a single data-day (24 hours GMT) that intersects the tile. The observations stored in the L2G grids are examined by the Level 3 products to extract the most relevant observations for each grid cell.

NOTE: The later versions of these products are validated, meaning that product uncertainties are well defined over a range of representative conditions. Although there may be later improved versions, these data are ready for use in scientific publications.

SDS	Units	Data Type -bit	Fill Value	Valid Range	Multiply by Scaling Factor
Solar Azimuth	Degree	16-bit signed integer	-32767	-18000 - 18000	0.01
Solar Zenith	Degree	16-bit signed integer	-32767	0 - 18000	0.01
Sensor Azimuth	Degree	16-bit signed integer	-32767	-18000 - 18000	0.01
Sensor Zenith	Degree	16-bit signed integer	-32767	0 - 18000	0.01
Range (ground-sensor)	Meters	16-bit unsigned integer	0	27000	25
Geolocation Flags	Bit Field	8-bit unsigned integer	255	0 - 248	na
Number of Observations	na	8-bit signed integer	-1	0 - 127	na

Order Data through the EOS Data Gateway
(http://edcimswww.cr.usgs.gov/pub/imswelcome/)

EOS Data Gateway Search Tips

Data Center:	EDC-ECS
Sensor:	MODIS
Dataset:	MODIS/Terra Geolocation Angles Daily L2G Global 1km SIN Grid Day
Spatial:	HORIZONTALTILENUMBER Max/Min VERTICALTILENUMBER Max/Min
Geographic Extent:	Type Lat/Long Range or Draw on Map
Temporal Extent:	2000-02-24 to present

Retrieve Data through the LP DAAC Data Pool
(http://edcdaac.usgs.gov/tutorial/datapool.html)

Product Information

Product Description - Not Available
User Guide - Not Available
Algorithm Theoretical Basis Document (ATBD) - See ATBD-MOD-28 MODIS Standard Data Products Catalog
(http://eospso.gsfc.nasa.gov/eos_homepage/for_scientists/atbd/viewInstrument.php?instrument=MODIS)

MODIS Standard Data Products Catalog - No description available for MODMGGAD
(http://modis.gsfc.nasa.gov/data/dataprod/descchart.html)

EOS Data Products Handbook Volume 1 (2000)
(http://eospso.gsfc.nasa.gov/eos_homepage/misc_html/data_prod.html)

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